than the first edition, the basic Cleveland technique and some variants. Amongst the latter is a hypothetical application to the elucidation of protease specificity, an experimental procedure not yet required, and this could have been omitted. Most of the half-tone figures in this chapter are wrongly-attributed.

Sundry lists, including equipment suppliers, polypeptide detection procedures, marker proteins, bibliography of applications, radiolabelling procedures, are gathered into 56 pages of appendices. The polypeptide detection appendix is outstanding, a huge compilation with references up to 1986.

The new edition is about 90 pages longer than the original, which had chapters on further topics. Some of the extra length probably comes from changes in the layout — extra subheadings, the grouping of recipes into Protocol sections. But in a number of chapters the editors have allowed their contributors to add discursive material without substantial revision of the ten-year-old original text. There is a lot of information in this book, but the reader should not assume that it has all been newly compiled. I found it to be a stimulating reference book, but not a text that I would find essential for an authoritative view of the possibilities in the present decade.

C.J. Bailey

Gas Chromatography: A Practical Course; By G. Schomburg; VCH; Weinheim, New York, 1990; xiv + 320 pages; DM 76.00

Although gas chromatography has been overshadowed by high pressure liquid chromatography in recent years as an analytical tool, it is still pre-eminent in many respects, such as versatility in its applications, and speed of analysis and sensitivity of detection. Coupling with other techniques such as mass spectrometry and infra-red spectroscopy makes it particularly valuable.

Quoting from the author's own preface, "This book is intended to represent a connecting link between the simple theory of gas chromatography and the requirements of gas chromatography analysis in practice". Thus, this reviewer would warn the novice. A lot can be learned from a reading of this book, but skip those sections not understood and look for an explanation elsewhere. Without doubt this book is better appreciated by readers having practical experience already of the technique and the instrumentation involved. A few examples may illustrate the point. Although the formula for the number of theoretical plates is given, no explanation of its derivation and relation to σ for a Gaussian curve is offered. Some phrases are not explained e.g. −10 to 10°C ballistically (p. 209), or easily understood, "Differently as with the flexible fused silica columns the ends of the non-flexible glass capillary columns have to be straightened in a flame for connection" (p. 37) or "the stretching of the column ends in a flame..." (p. 36). The chromatograms on p. 157 are intended to show leading and tailing peaks. This reviewer only recognized leading peaks. There were few typographical errors and the quality of the printing combined with an attractive soft cover makes the book useful for easy reference.

Basic design of gas chromatographs and theory covers the first 29 pages. This is followed by a discussion of columns and methods of injection (more time should have been spent on explaining the difference between split and split-less injections), detectors and coupling systems. In the section on quantitation, external standards are omitted, although these are briefly referred to on p. 52. Problems associated with distorted peak shapes are discussed as are problems with trace analysis. There is a short chapter on supercritical fluid chromatography, but it would have been helpful to have included a brief explanation of the supercritical state in the introduction. A large section (93 pages) is devoted to examples of gas chromatographic separations of a wide range of different types of compounds. There is a glossary of terms and an index.

A. Darbre

Optical Microscopy for Biology; Edited by Brian Herman and Ken Jacobson; Wiley-Liss; New York, 1990; xviii + 658 pages; $95.00

The title of this book might suggest that it is a general text on microscopy for biologists. On the contrary, it is the Proceedings of the International Conference on Video Microscopy held in Chapel Hill during June 1989, a collection of papers describing the latest developments in the techniques and applications of optical microscopy. It will be of interest to all microscopists who study the structure and function of cells, and to those biologists who underestimate the wealth of quantitative information which can be obtained with the light microscope.

The volume contains forty-four contributions which are organized into three principal sections: (1) Technical Developments for Optical Microscopy, (2) Applications of Video Microscopy, and (3) New Directions in Optical Microscopy. The numerous diagrams and micrographs are supplemented by sixteen pages of colour plates.

The section on technical developments is devoted largely to confocal microscopy and the use of fluorescent probes, reflecting the rapid growth of this technique in recent years. Naturally, much is made of 3-dimensional reconstruction

from optical sections of specimens ('optional' sections as they are referred to in the publisher's cover notes!), and it is useful that some authors draw attention to the limitations of fluorescence imaging. Several informative papers on the properties of video cameras and image correction should prove valuable, especially to those who are new to the field of video microscopy.

The second section is devoted to the application of video techniques in cell biology, being a varied collection of papers on ion imaging of intracellular pH and Ca^{2+} concentration, the dynamics of plasma membrane structure, mitosis, the cytoskeleton, and cell motility.

The final section of the book returns the emphasis to techniques, but to those which are still in their infancy. Most of these do not involve new technology as such, but are the result of combining a number of systems and correlating the information obtained from each. For example, Multi-mode Light Microscopy permits several microscopic imaging methods to be used simultaneously, whilst Four-Dimensional light microscopy offers the opportunity to study the dynamics of three-dimensional fine structure in living cells. One recent technical development, at least in a practical form, is the near-field lensless scanning optical microscope. This device offers resolution of a few tens of nanometres, although it may be some time before its full potential is realized.

On the whole, this book is not for those who are new to video microscopy and who require detailed background information about imaging techniques and the associated hardware. For them, *Video Microscopy* by Shinya Inoué (1986) is still the best source, but for microscopists and biologists who wish to keep abreast of the latest developments and state-of-the-art applications of video microscopy, this book is certainly recommended.

A. Brown